

Exhibit N

(Part 1 of 2)



US006729976B2

(12) **United States Patent**
Bissonnette et al.

(10) **Patent No.:** **US 6,729,976 B2**
 (45) **Date of Patent:** **May 4, 2004**

(54) **GOLF BALL WITH IMPROVED FLIGHT PERFORMANCE**

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(73) Assignee: **Acushnet Company**, Fairhaven, MA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 19 days.

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(21) Appl. No.: **10/096,852**

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(22) Filed: **Mar. 14, 2002**

(65) **Prior Publication Data**

US 2003/0045378 A1 Mar. 6, 2003

Related U.S. Application Data

(60) Continuation-in-part of application No. 09/989,191, filed on Nov. 21, 2001, and a continuation-in-part of application No. 09/404,164, filed on Sep. 27, 1999, now Pat. No. 6,358,161, which is a division of application No. 08/922,633, filed on Sep. 3, 1997, now Pat. No. 5,957,786.

(51) Int. Cl.⁷ **A63B 37/14**

(52) U.S. Cl. **473/383**

(58) Field of Search **473/378-384**

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Primary Examiner—Racann Gorden

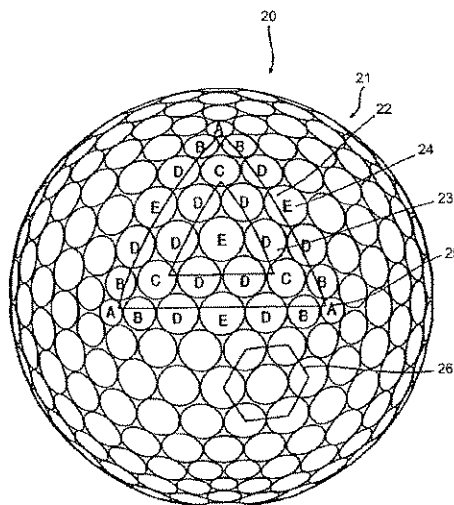
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(57) **ABSTRACT**

A golf ball with aerodynamic coefficient magnitude and aerodynamic force angle, resulting in improved flight performance, such as increased carry and flight consistency regardless of ball orientation. In particular, the present invention is directed to a golf ball having increased flight distance as defined by a set of aerodynamic requirements, at particular spin ratios and Reynolds Numbers. The invention is also directed toward golf balls with dimple diameters of greater than 6.5 percent of the ball diameter and dimples with a profile defined by a catenary curve.

47 Claims, 17 Drawing Sheets

$D_A < D_B \leq D_C \leq D_D \leq D_E$
 $80\% D_A, D_B, D_C, D_D, D_E > 0.11"$
 DIMP. AREA > 80%



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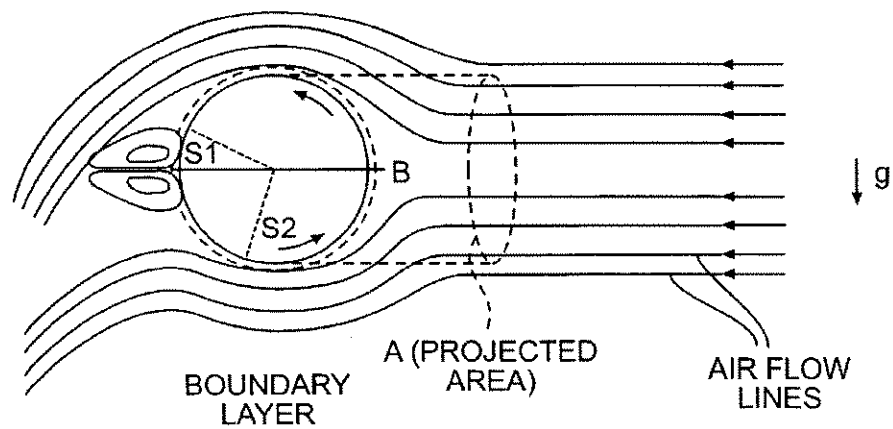


FIG. 1

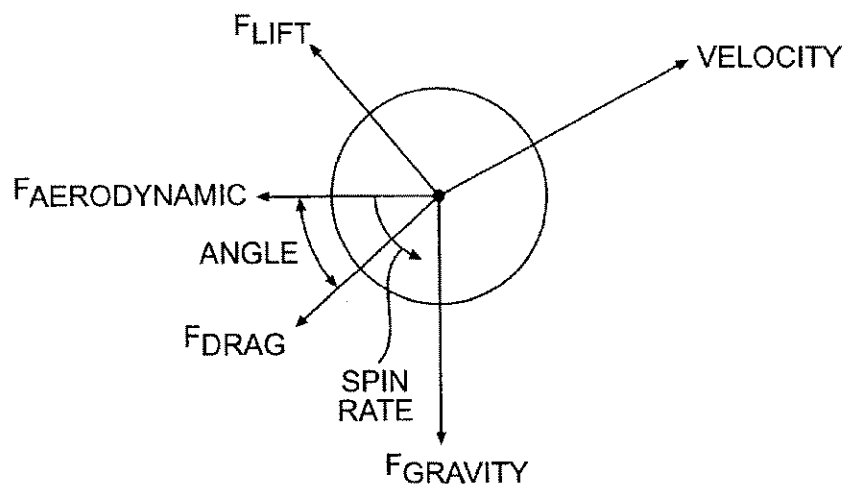


FIG. 2

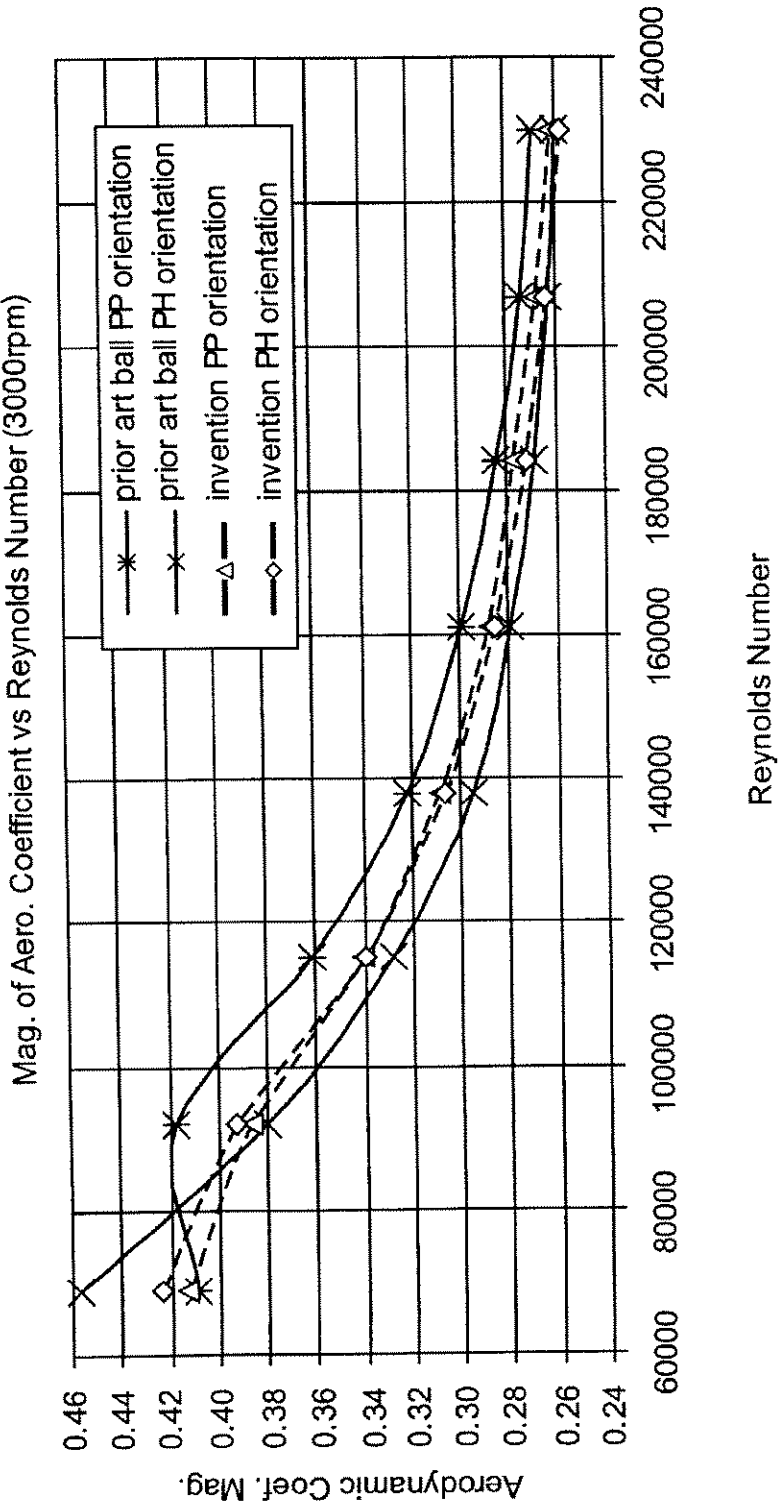


FIG. 3

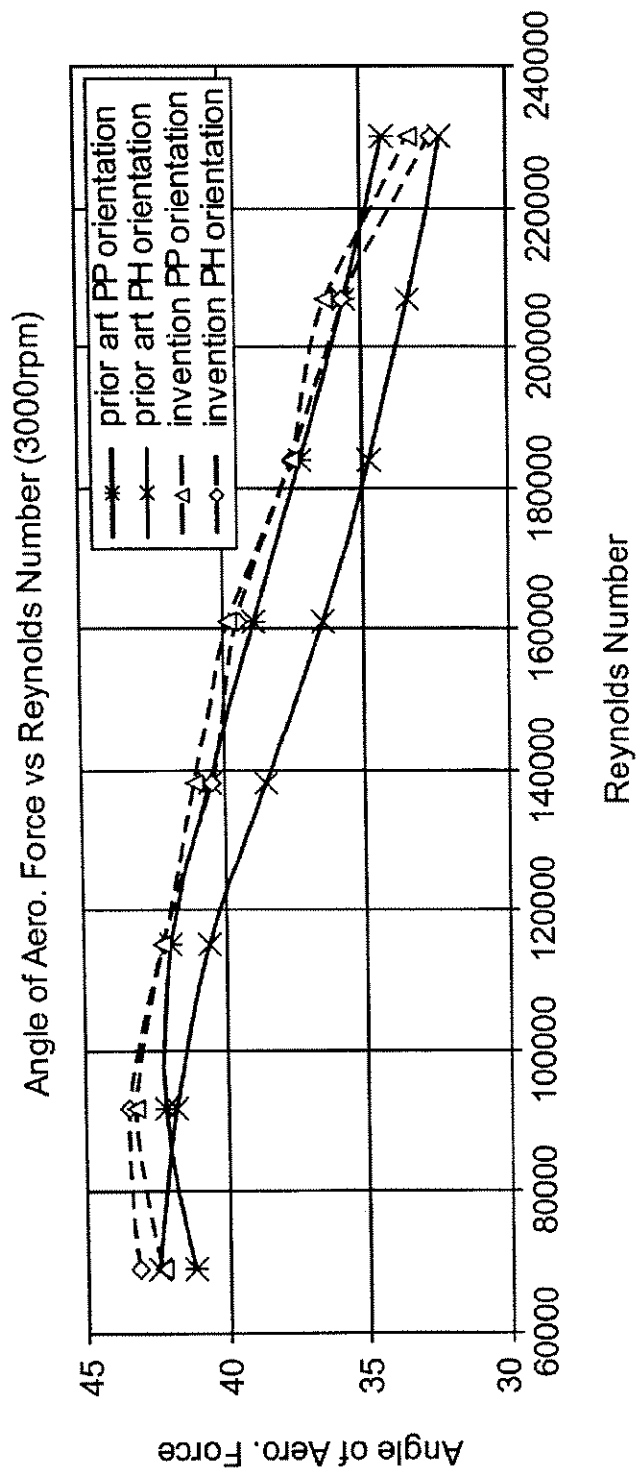


FIG. 4

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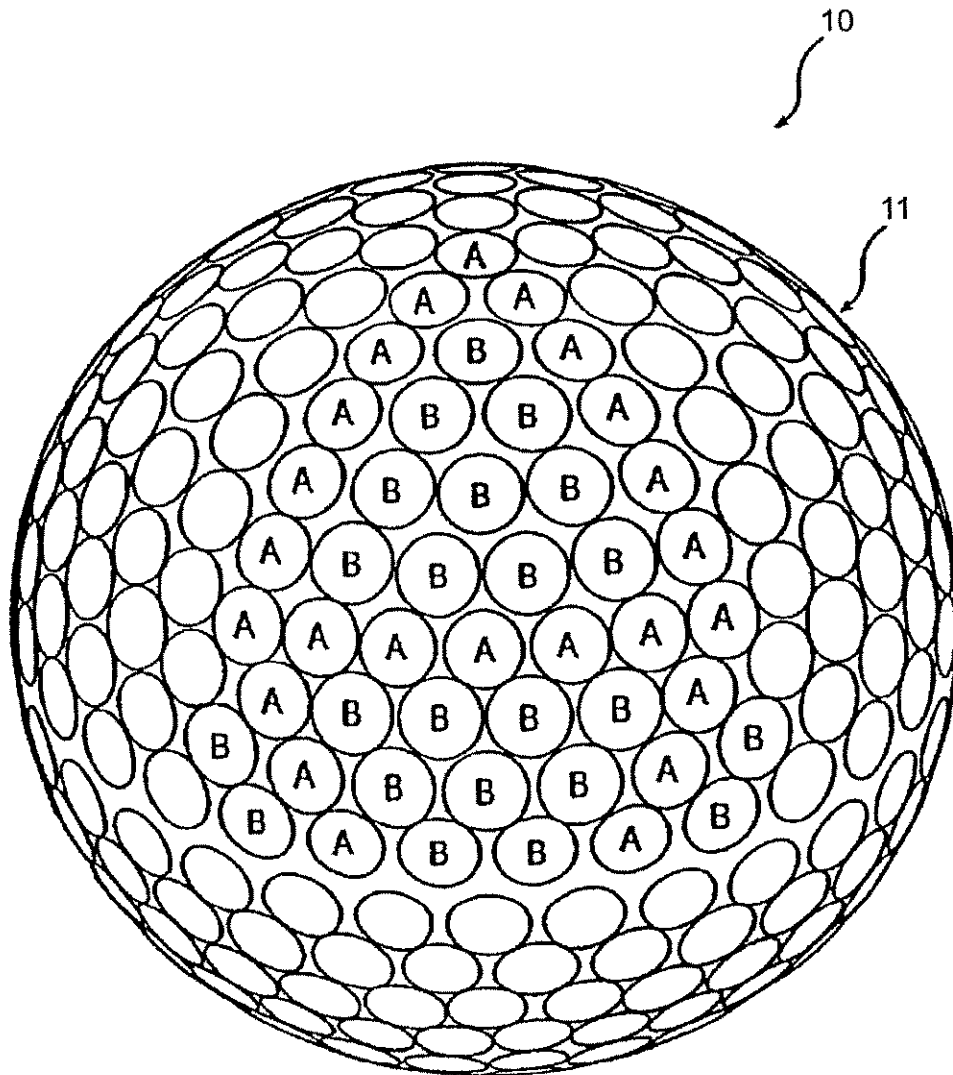


FIG. 5
PRIOR ART

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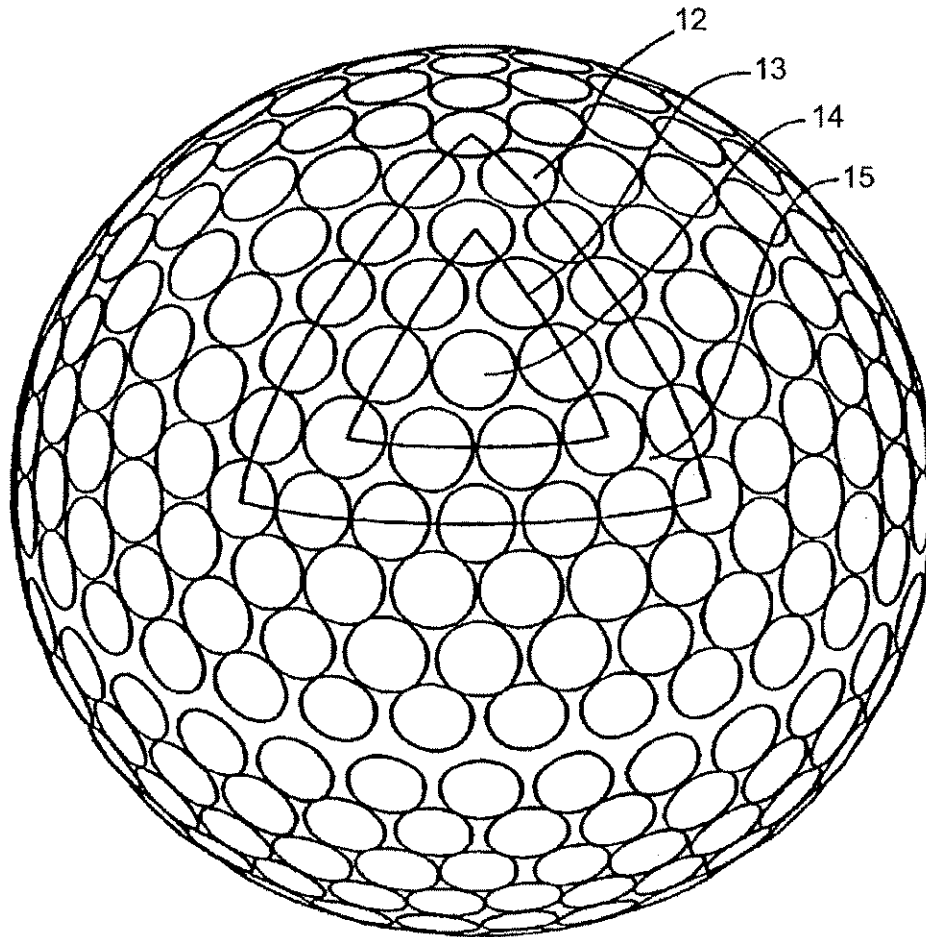


FIG. 6
PRIOR ART

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$D_A < D_B \leq D_C \leq D_D \leq D_E$
 $80\% D_A, D_B, D_C, D_D, D_E > 0.11"$
 DIMP. AREA > 80%

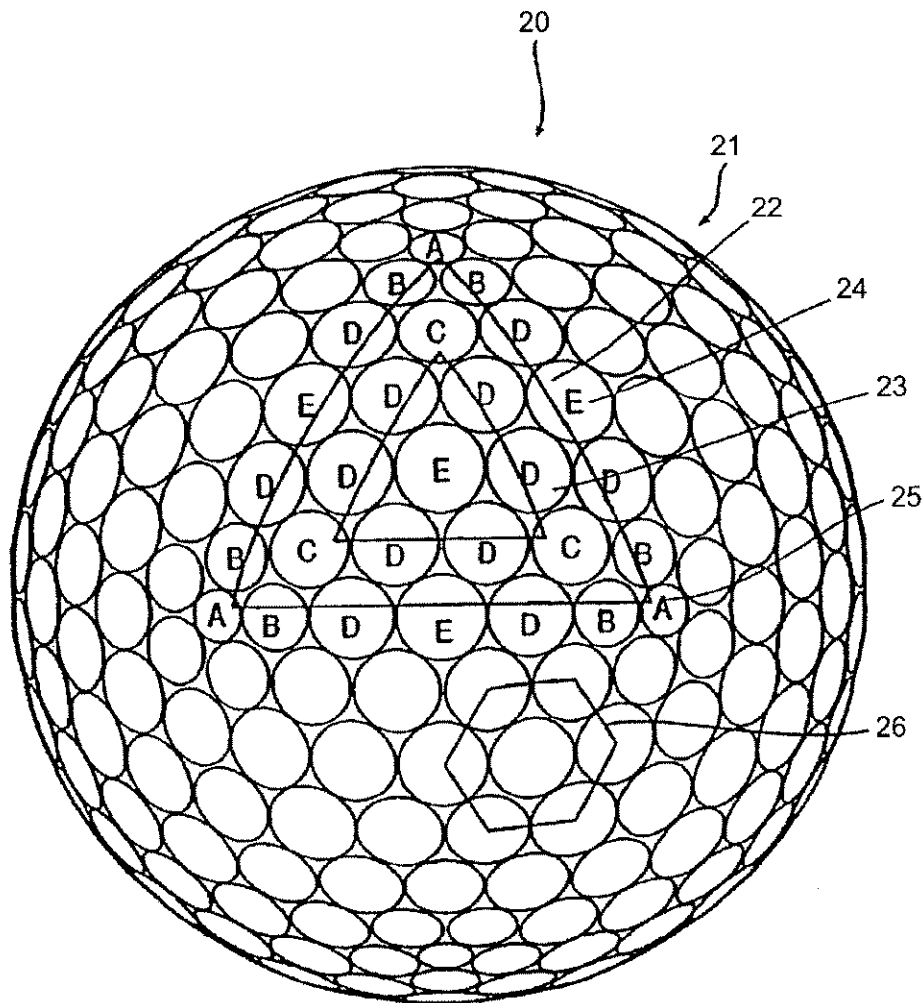


FIG. 7

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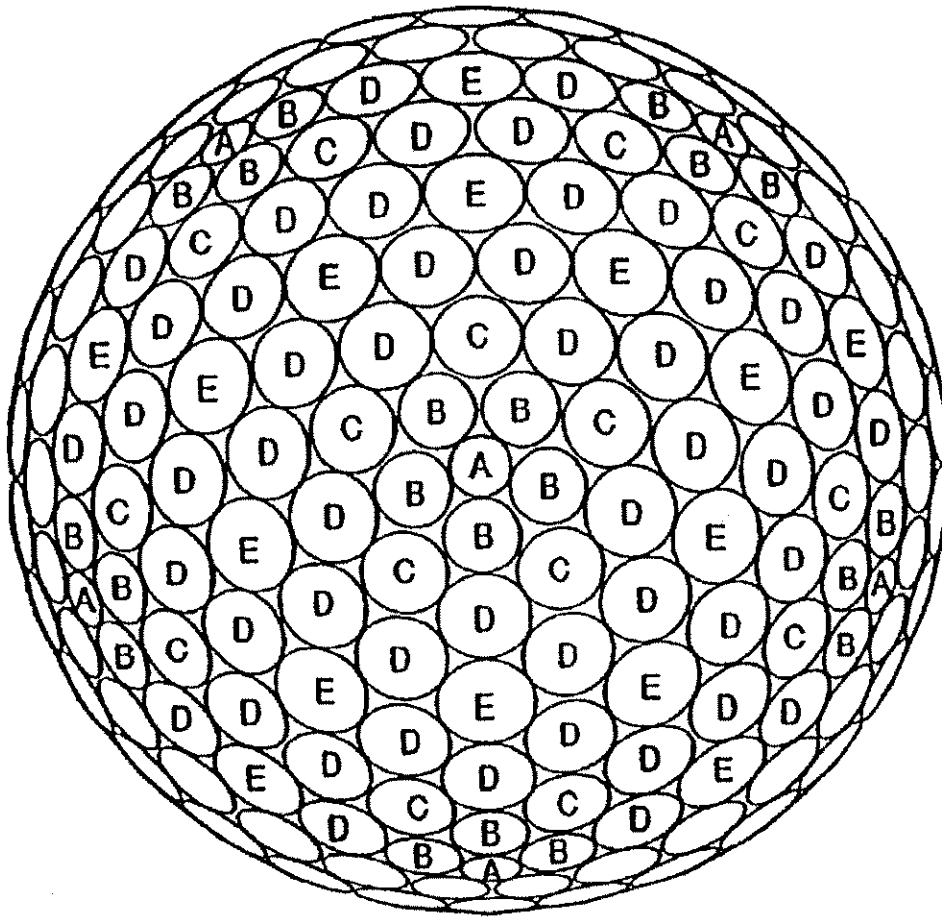


FIG. 8

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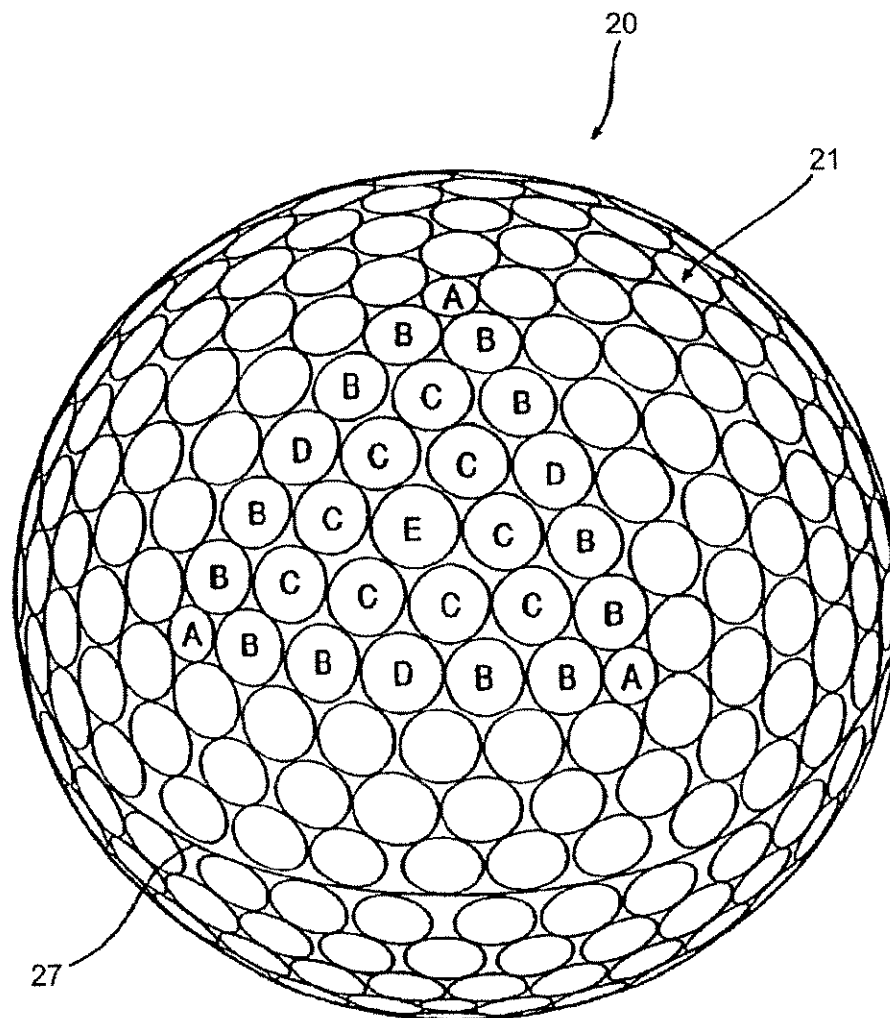


FIG. 9

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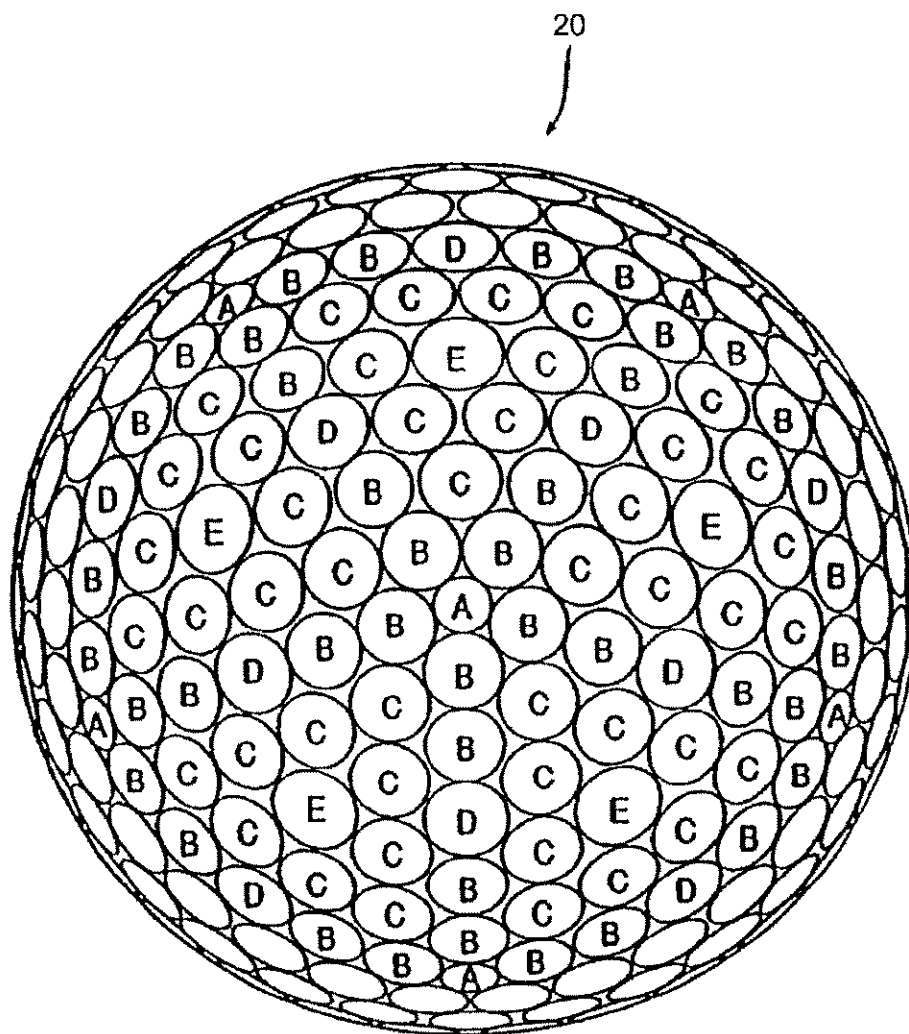


FIG. 10

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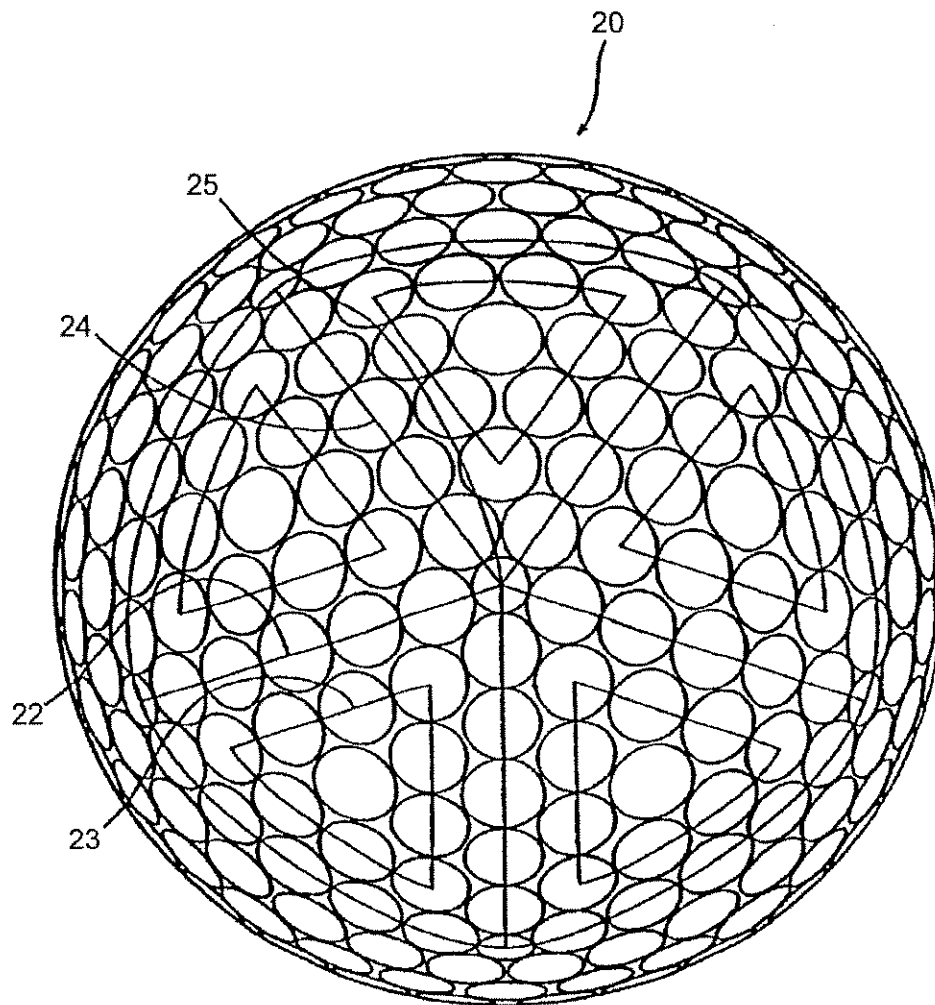


FIG. 11

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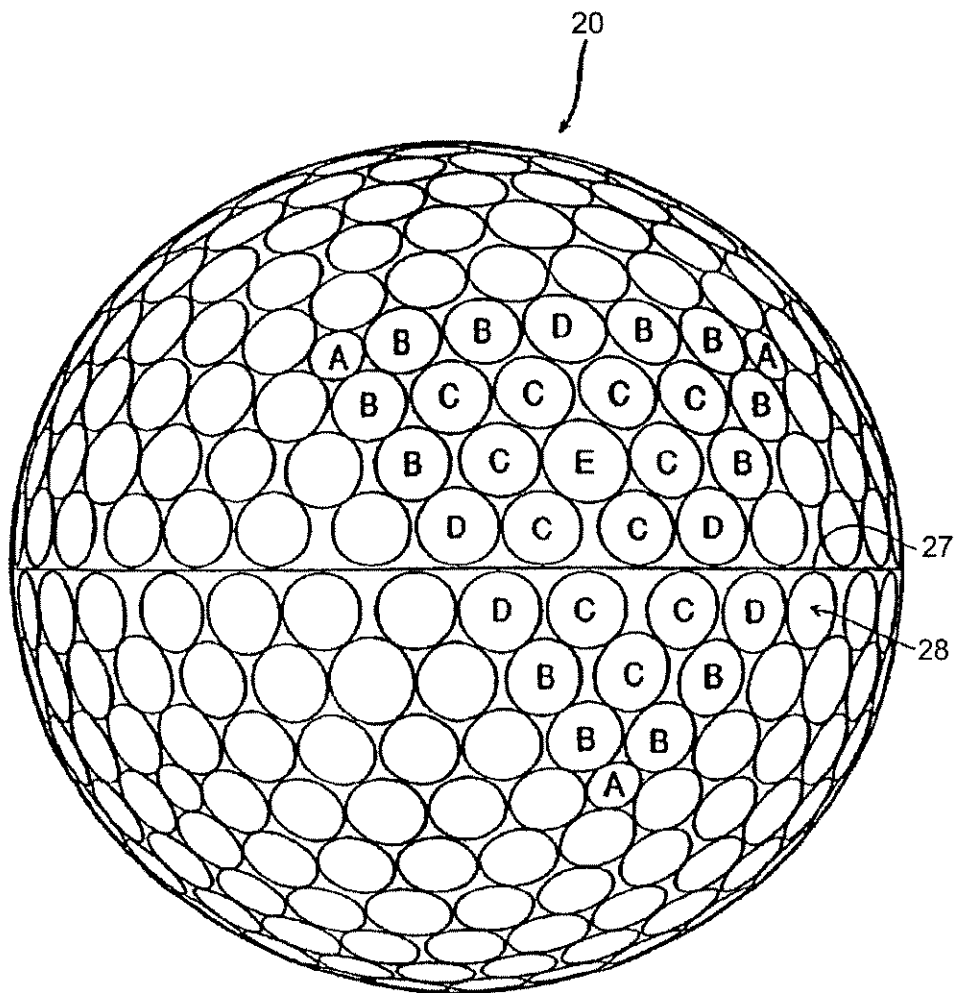


FIG. 12

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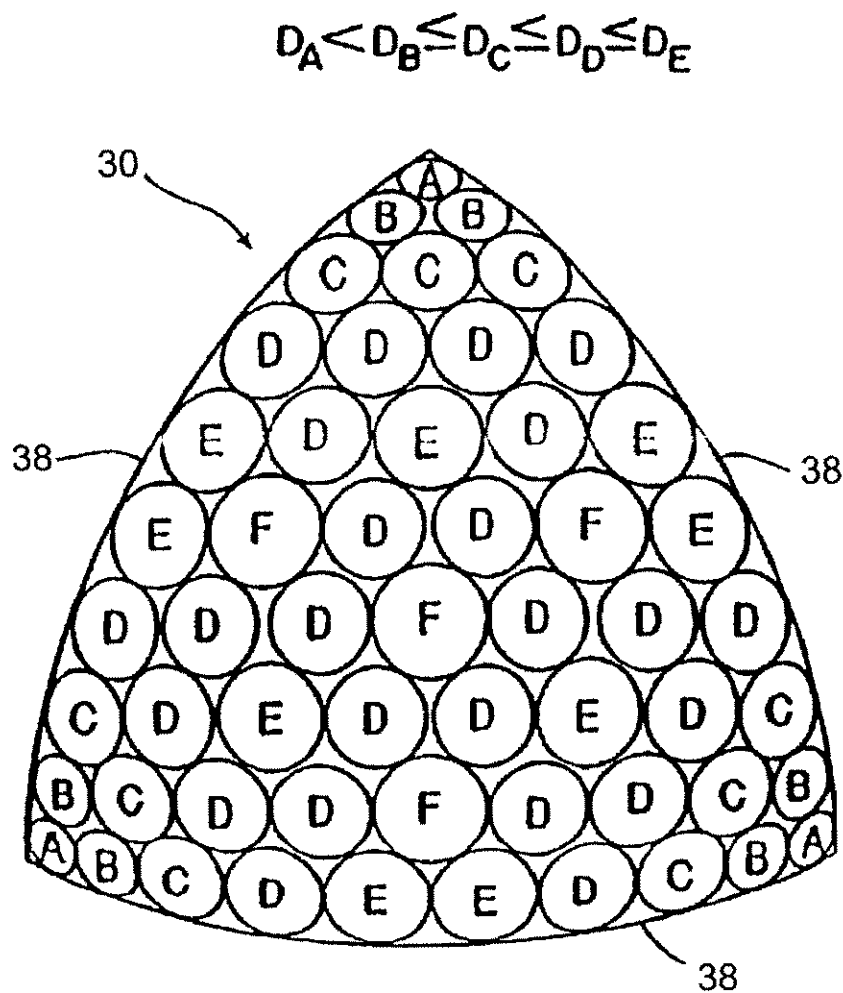


FIG. 13

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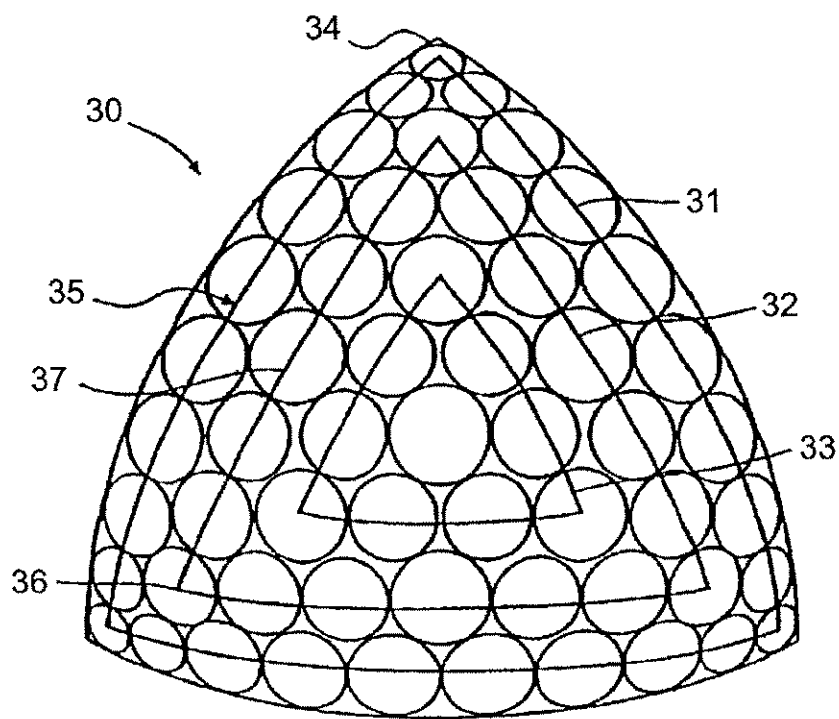


FIG. 14

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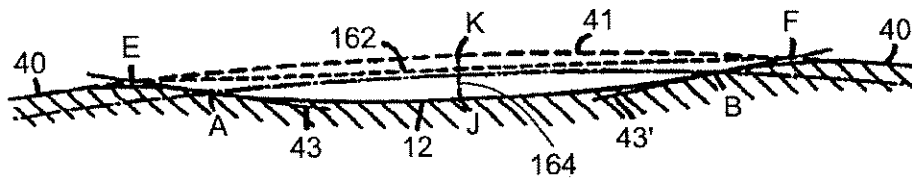


FIG. 15